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ago, d/a ltr, 29 apr 1980

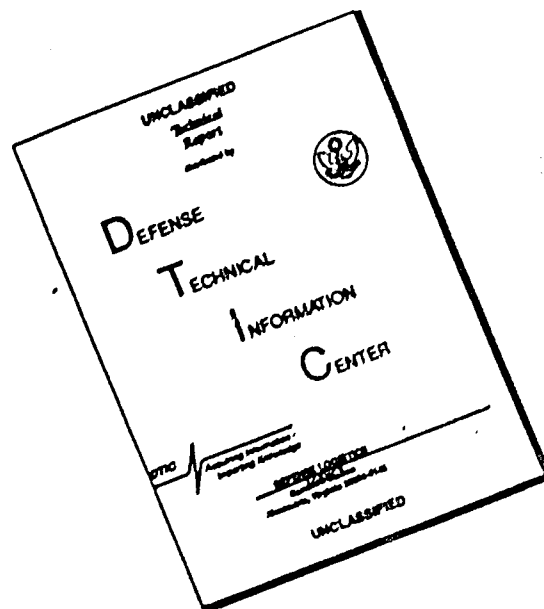
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DEPARTMENT OF THE ARMY
OFFICE OF THE ADJUTANT GENERAL
WASHINGTON, D.C. 20310

IN REPLY REFER TO

AGDA (M) (6 Mar 70) FOR OT UT 694327


13 March 1970

SUBJECT: Operational Report - Lessons Learned, Headquarters, 36th Engineer Battalion, Period Ending 31 October 1969

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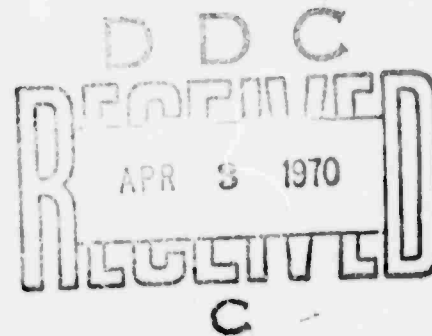

ROBERT E. LYNCH
Colonel, AGC
Acting The Adjutant General

1 Incl
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12

DEPARTMENT OF THE ARMY
HEADQUARTERS 36TH ENGINEER BATTALION (CONST)
APO San Francisco 96357

EGFE-OP

10 November 1969

SUBJECT: Operational Report - Lessons Learned, RCS CSFOR-65 (R2), for Quarter
Ending 31 October 1969

Commander-in-Chief, United States Army, Pacific, ATTN: GPOP-OT, APO 96588
Commanding General, United States Army, Vietnam, ATTN: AVHCC-OH, APO 96307
Commanding Officer, 34th Engineer Group (Const), ATTN: EGF-OP APO 96320

1. SECTION I, OPERATION - Significant Activities

a. From 1 August 1969 thru 31 October 1969, the 36th Engineer Battalions' construction effort was directed toward three major projects. These projects were the restoration of National Highway 4 from My Thuan to Ba Cang in Vinh Long Province, the upgrade of MACV Advisory Facilities in Kien Hoa, Vinh Binh, Dinh Tuong and Kien Tuong Provinces and base construction at Vinh Long Army Airfield.

b. The National Highway 4 project required the repair and upgrade of 16 km of road and new construction of 11km of realigned road using clay-lime and clay-lime-cement stabilization. As of 31 October 1969 progress on the new alignment included completion of 10.4km of embankment fill, 5.3km of clay-lime subbase and 3.6km of clay-lime-cement base course. Completion of the 16km of repair and upgrade included placing of 13.9km of sand fill, 13.6km of sand-cement subbase, 13.5km of rock base course, and 10.1km of surface treatment.

c. During the period the battalion was also devoted to the construction of base facilities at Vinh Long Army Airfield. Vertical construction included the completion of 7-20'x44' two story troop billets, 2-10,500 gallon water storage tanks, MER latrines and showers and 2-20'x40' concrete maintenance pads. The base construction mission also included the dismantling at Dong Tam, of 2-20'x96' Pasco buildings, 8-20'x60' Adams huts, 3-80'x144' hangars and 3-40'x96' warehouses. Thirteen of the sixteen structures were transported to Vinh Long for reassembling. As of 31 October 1969, 2-20'x96' Pasco buildings and 3-20'x60' Adams huts were completed in Vinh Long. Work is continuing on the remaining 4-20'x60' Adams huts, 3-80'x144' hangars, and the 40'x96' warehouse. In addition the battalion completed a major upgrade of the Vinh Long Army Airfield. Helicopter parking apron totaling 44,000 square yards, with maintenance hardstand, was constructed using a 8" sand-cement (10% cement) base course with a single surface treatment. Also included in this project were 29 Helicopter revetments.

d. MACV Advisory Facilities accounted for the remainder of the construction effort. During this period the battalion was tasked with the upgrade of 19 MACV Advisory Sites. As of 31 October three facilities have been completed, with work in progress at four sites.

FOR OT UT
694327
Inclosure

EGTE-OP

10 November 1969

SUBJECT: Operational Report - Lessons Learned (RC3-CSF ORRL) for Quarterly Period Ending 31 October 1969

e. During the period the battalion continued operation of the Vinh Long rock off-loading facility. Monthly off-loading production rates were 14,848 tons in August, 19,188 tons in September and 24,248 tons in October. As of 31 October 1969, a total of 192,546 tons have been unloaded since the sites' inception in January 1969. During the period the battalion started site preparation for a 80-120 ton per hour asphalt plant which is scheduled to arrive in Vinh Long approximately 15 November 1969.

g. During the period the battalion was augmented with commercial construction equipment under the LOC/MCA equipment program. As of 31 October the battalion has received 44 pieces of LOC equipment. Equipment received this period included 16-12 ton dump trucks and 1-6 yard transit mix concrete truck.

h. During the period the battalion inprocessed 99 personnel as replacements and outprocessed 115 personnel for reassignment or separation.

i. During the period the battalion extended 80 days performing its construction and support missions, 6 days undergoing mandatory training and 6 days non-duty.

2. SECTION I, Operations-Organization

a. Organic Units

- (1) HHC, 36th Engineer Battalion (Const)
- (2) A Co, 36th Engineer Battalion (Const)
- (3) B Co, 36th Engineer Battalion (Const)
- (4) C Co, 36th Engineer Battalion (Const)
- (5) D Co, 36th Engineer Battalion (Const)

3. SECTION II, Lessons Learned, Commander's Observations, Evaluations and Recommendations:

- a. Personnel: None
- b. Intelligence: None
- c. Operations:

(1) Rock Off-Loading Facilities

(a) Observation: The shortage of operational cranes in the battalion has limited the rock off-loading capability of this unit.

(b) Evaluation: Barges moored at off-loading sites are normally secured within 15 feet of the pier and can be off-loaded with a scoop loader by constructing a ramp from the pier to the barge. This unit has constructed a ramp (see attached diagram #1) and utilized the ramp to off-load as much as 1,000 tons in 10 hour period (two (2) barges). The ramp is secured to the pier via a pin and plate system (see attached diagram #2) which allows the ramp to adjust to the size of the gap from barge to pier and accomodates the change in tides. The ramp alleviates using a crane thus making the operation dependant on the availability of front loaders. Availability of front loaders

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EGFE-OP

10 November 1969

SUBJECT: Operational Report - Lessons Learned (RCG-CSF ORRL) for Quarterly
Period Ending 31 October 1969

is much better than cranes. Off-loading can be accomplished twice as fast with a front loader than with a crane and 3/4 yard clamshell attachment.

(c) Recommendation: That this expedient ramp or variations thereof be utilized at other off-loading facilities to increase rock off-loading productions.

(2) Substitute of Preservative

(a) Observation: Shortage of C&W Compound (lubricating oil for chain, wire rope, exposed gears), leaves exposed gears without lubrication and susceptible to rust and corroding.

(b) Evaluation: If exposed gears or enclosed gears are left without lubrication, rust and corrosion can damage the machine or even deadline it. The 40 ton crane (P&H Model) has exposed gears which this unit coated with GAA due to the lack of C&W Compound (FSN 6850-274-4169) or a suitable substitute. The GAA was easily contaminated with water and extensive rust was formed on the gears in a few days while the crane was not working. By trying numerous lubricants and asphalt products it was found that AP3 (Asphalt Penetration Grade #3, FSN 510-236-4964) worked as well or better than C&W Compound for lubricating and preserving the gears.

(c) Recommendation: The possible use of AP3 as a preserving compound be evaluated at higher level and listed as a substitute for C&W Compound.

(3) Spreading DEBT

(a) Observation: Time and personnel are saved by eliminating the aggregate spreader box.

(b) Evaluation: The use of MCA/LOC 12 ton dump trucks (GMC Diesel with Heil body) eliminates the need to use a spreader box while applying aggregate for bituminous surface treatments. Several time consuming operations can be eliminated and five people can be taken from the job without losing any effectiveness. The need to couple and uncouple the spreader box from the dump truck, which averages five minutes, is the first advantage to be realized. The spreader box had a capacity of approximately one cubic yard so the dump had to be raised every 25 feet to refill the box. The tilting of the bed would take three minutes, however, the major disadvantage was that a large quantity of rock spilled out of the spreader box due to the difficulty in regulating the amount of aggregate dumped. This would leave humps of aggregate that had to be leveled out by a two-man back-up crew. The need to have two men in the spreader box to insure an even flow and one man operating the opening handle are also eliminated. To spread 12 tons of aggregate using a five ton dump and spreader box would take seven people an average of 45 minutes. Using a LOC truck with a driver and guide the same 12 tons can be spread in three minutes. This is possible since the driver merely tilts the bed, opens the tailgate and drives in reverse until the load is emptied.

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EGFE-OP

10 November 1969

SUBJECT: Operational Report - Lessons Learned (RC2-CGF ORRL) for Quarterly Period Ending 31 October 1969

(c) Recommendation: Utilize the MCA/LOC 12 ton dump trucks for DBST operations.

(4) D-7 operations in rice paddies.

(a) Observation: Operational capabilities of D-7 dozers in high moisture content clay is not significantly increased with the use of wider track pads.

(b) Evaluation: Experience has indicated that D-7 dozers equipped with the wider track pads had only a slightly larger capability than the standard width track pad D-7's. In addition, it was learned that once the D-7 with wider track pads got stuck in the wet clay, it was noticeably more difficult to recover. The effort expended extracting stuck dozers with wide track pads easily cancelled any gain in production, and during the time period the wider tracks were used daily production levels were lower than with regular tracked equipment.

(c) Recommendations: That wider track pads not be used on D-7 dozers when working excessively wet clay. Under slightly drier conditions they should work well.

(5) Crawler mounted cranes with draglines

(a) Observation: Crawler-mounted cranes utilized for dragline operations have a tendency to slide off a wet road when pulling in the drag bucket.

(b) Evaluation: While using crawler-mounted cranes with draglines to bring fill up on the embankment, it was found that the cranes had a tendency to gradually slide over the edge of the embankment. That is, as the dragline was pulled in, the crane would slide out. By welding grouser cleats to the tracks, the cranes could operate very effectively without sliding toward the rice paddies. The grousers dug into the road and prevented lateral movement. Sketch of grouser pattern is attached as diagram #3.

(c) Recommendation: When working on wet clay fill, the welding of grouser cleats to the normally smooth pads of crawler-mounted cranes should be considered.

(6) Exterior walls of tropical buildings

(a) Observation: Screen and louver blocks are easier to mount on wall panels while the panels are in a horizontal position.

(b) Evaluation: It was found that screen and louver blocks could be attached to the wall panels of tropical buildings on the ground after panel fabrication. The screen is then rolled out and attach to the panel using the louver blocks.

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RGFE-OP

10 November 1969

SUBJECT: Operational Report - Lessons Learned (ROG-CSF ORRL) for Quarterly Period Ending 31 October 1969

(c) Recommendation: That the application of screen and louver blocks be completed prior to the erection of the exterior wall panels.

(7) Removal of Prefab buildings

(a) Observation: Screws, nails and bolts have a tendency to be lost following dismantling of prefab metal buildings.

(b) Evaluation: It was found during the dismantling of prefab metal buildings at Dong Tam, RVN, that by the time the buildings arrived at Vinh Long, RVN, many of the screws, nuts, and bolts that were placed in sacks were lost in transit or misplaced in storage. To alleviate this possible loss, each screw, and nut and bolt should be replaced in its proper hole following dismantling. Not only will this save all the nuts and bolts, but when the buildings are reassembled there was no doubt as to the proper type of screw or nut and bolt needed for the connection.

(c) Recommendation: That screws, nuts, and bolts be replaced in their proper holes and tightened immediately while dismantling a prefab building.

(8) Use of Bad Pallets of Lime and Cement

(a) Observation: Use of lime and cement from damaged pallets

(b) Evaluation: This unit uses lime and cement in large quantities. All cement and lime is shipped to Vinh Long on pallets. Through continued handling many pallets and bags are extensively damaged to the point where they can not be moved with a fork lift. Salvage of the good bags from the extensively damaged pallets required construction of a new pallet and physical placing of the bags on the new pallet. Many of the bags are broken but the cement and lime contained there-in is still usable. Even through careful handling the contents of most broken bags was also lost through spillage and hydration. To salvage a maximum of cement and lime from the broken pallets and bags this unit constructed 5 wooden scoop boxes (see attached diagram #4), which can be lifted with a fork lift. The bags both broken and good are hand loaded into the boxes, covered with canvas, and transported to the concrete batch plant in the case of cement and to the lime tower in the case of lime where they are used as quickly as possible. It is estimated that 5% of cement and lime which would otherwise be lost is salvaged through use of the box. Another advantage is that the box will contain 120 bags of cement where as each pallet will only contain 30 bags.

(c) Recommendations: Construction of wooden scoop boxes to salvage good lime or cement on broken pallets.

(9) Patching Pot Holes

(a) Observations: Use of the 3-10 ton Drier-Mixer Bituminous Concrete provides excellent material to patch pot holes.

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5

EGFE-OP

10 November 1969

SUBJECT: Operational Report - Lessons Learned (RCS-CSF ORRL) for Quarterly
Period Ending 31 October 1969

(b) Evaluation: Patching of pot holes in DBST is a major problem during the monsoon season in Vietnam. RC800 applied over the failure as a DBST proved completely unsatisfactory even though the surface failure was completely excavated and squared, filled and recompact. The patch would not hold over a day or two. This was due to the daily rains, heavy traffic conditions, and inability of the asphalt to set up. A road mix of RC800 was tried with negative results. The solution was reached through the use of a trailer mounted Wylie, drier mixer bituminous concrete FSN 3895-272-7768. The machine produced between 5-7 tons of hot mix asphalt per hour. AP3 (85/100) heated to 275°F was used as the binding agent. The asphalt patching crew was set up with one 5 ton dump with 3½ inch minus aggregate pulling an air compressor with tools to excavate square surface failures and fill and compact the base. Three 5 ton dumps with wooden divider down center of each bed, one side of which contained 3/8" aggregate, the other 3/4" aggregate; The drier mixer, crew with wheel borrows, rakes and shovels to place and level asphalt in the prepared excavation; And a 8-10 ton roller to roll the 3½" aggregate and the asphalt. The aggregate was hand shoveled from a 5-ton dump into the drier mixer at a rate of three shovels of 3/8" and 2 shovels of 3/4" aggregate. The drier mixer is an excellent piece of equipment and properly maintained and operated will provide 95% availability. All pot holes which have been patched with the drier mixer have lasted through the monsoon season.

(c) Recommendation: Use the drier mixer to patch surface failures in DBST.

(10) Maintenance of Double Bituminous Surface Treatment

(a) Observation: Maintenance of DBST pavements during the monsoon season in the Vietnam Delta required a great expenditure of work effort.

(b) Evaluation: From January to June 1969 this unit widened 10 kilometers of National Highway QL-4, utilizing sand fill overlaid with sand-cement and rock. Road was programed to have 4 inch asphaltic concrete overlay. However, asphalt plant did not arrive as scheduled and it was decided to protect the road with DBST until the asphalt plant arrived in late November. The monsoon season in Vinh Long started in June and lasted until November. The daily rains, great volume of traffic, and tremendous wheel loads caused failures in the DBST along the entire road. The failures would start with ravelling and cracking and within a matter of days develop into an extensive base failure. If not quickly repaired water would enter the base causing deep subbase failures in the underlying clay. Failure in the clay is very difficult to repair and involves excavation in some cases up to 5 foot deep over a 20' to 30 foot area, and filling with compacted select fill. This unit utilized a crew of 14 US and 11 Vietnamese 10 hours per day 6 days per week throughout the raining season patching the DBST.

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10 November 1969

SUBJECT: Operational Report - Lessons Learned (RCS-CSP ORRL) for Quarterly
Period Ending 31 October 1969

(c) Recommendation: If DBST is used to protect a heavily traveled road in the Delta, maintenance of the DBST must be included in the construction schedule. This is particularly critical through the monsoon season. Additionally DBST should never be considered as a permanent surfacing for a Delta road unless required by the absence of asphaltic concrete. If DBST is used an extensive and long term maintenance program must be accepted.

V. D. Stipo
V. D. STIPO
LTC, CE
Commanding

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EGF-OP (31 Oct 69) 1st Ind

SUBJECT: Operational Report of 36th Engineer Battalion (Const) for Period
Ending 31 October 1969, RCS CSFOR-65(R2)

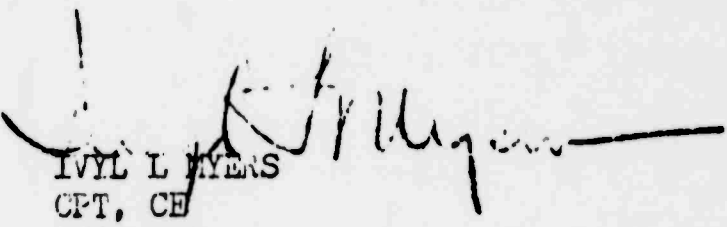
DA, HEADQUARTERS 34TH ENGINEER GROUP (CONST), APO 96320

18 OCT 1969

TO: Assistant Chief of Staff for Force Development, Department of the
Army, Washington, D.C., 20310
Commanding Officer, 20th Engineer Brigade, ATTN: AVBI-OS, APO 96491

The subject report submitted by the 36th Engineer Battalion (Const) has
been reviewed by this headquarters and is considered comprehensive and of
value for documentation and review of the reporting unit's activities and
experiences.

FOR THE COMMANDER:


IVYL L. MYERS
CPT, CE
Adjutant

Copy Furnished:
CO, 36th Engr Bn (Const)

AVBI-OS (10 Nov 69) 2nd Ind

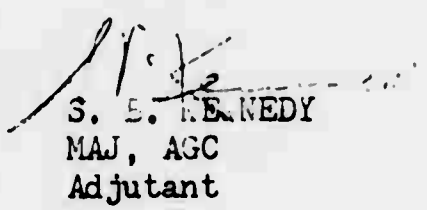
SUBJECT: Operational Report of 36th Engineer Battalion (Const) For Period
Ending 31 October 1969, RCS CSFOR-65 (R2)

DA, HEADQUARTERS, 20TH ENGINEER BRIGADE, APO 96491 07 DEC 1969

TO: Commanding General, United States Army Vietnam, ATTN: AVHGC-DST,
APO 96375

1. Submitted in accordance with USARV Regulation 525-15, dated 13 April 1968.
2. Subject report has been reviewed by this headquarters and is considered adequate.

FOR THE COMMANDER:


S. E. KENNEDY
MAJ, AGC
Adjutant

CF:
CO, 34th Engr Gp
CO, 36th Engr Bn

AVHGC-DST (10 Nov 69) 3d Ind

SUBJECT: Operational Report-Lessons Learned (RCS CSF OELL) for
Quarterly Period Ending 31 October 1969

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO 96375 3 7 JAN 1970

TO: Commander in Chief, United States Army, Pacific, ATTN: GPOP-DT,
APO 96558

1. This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 31 October 1969 from Headquarters, 36th Engineer Battalion (Construction) and comments of indorsing headquarters.

2. Comments follow:

a. Reference item concerning "Substitute of Preservative", page 3, paragraph 3c(2); nonconcur. The use of AP-3 as a substitute for CW is not recommended. It is neither a lubricating agent nor a corrosion inhibitor. It is recommended that the correct Federal Stock Number be used when ordering the CW compound.

CW COMPOUND FSN'S

9150-234-5197	5 lb	Grade A
9150-261-7891	35 lb	Grade A
9150-234-5199	5 lb	Grade B
9150-246-3276	35 lb	Grade B
9150-234-5200	5 lb	Grade C
9150-264-2918	35 lb	Grade C

The use of AP-3 as a protective paint is possible, as it is quite similar to a latex paint except with a low melting point. AP-3 may be used to coat dozer and grader blades during periods of extended inactivity. The use of any field expedient should be authorized by a unit commander only after the needed item has been correctly requisitioned.

b. Reference item concerning "Spreading DBST", page 3, paragraph 3c(3); concur. However, this use is appropriate only in the isolated cases where DBST is applied on LOC projects as an expedient temporary surface, or on treated shoulders.

c. Reference item concerning "Crawler mounted cranes with draglines", page 4, paragraph 3c(5); nonconcur. The cleats would cause considerable damage when loading, unloading, or moving the crane on prepared surfaces. Recommend the use of blocking or deadmen to prevent sliding under the conditions described. If this is not feasible, the cleats can be used, but must be removed prior to loading the crane to preclude damage.

17 JAN 1970

AVHSC-DST (10 Nov 69) 3d Ind
SUBJECT: Operational Report-Lessons Learned (RCS CSF ORLL for Quarterly
Period Ending 31 October 1969

d. Reference item concerning "Maintenance of Double Bituminous Surface Treatment", page 6, paragraph 3c(10); concur. The DBST was used only as a temporary surfacing and only where asphaltic concrete was not available. Asphalt plants are being relocated to preclude the necessity of DBST on LOC construction.

FOR THE COMMANDER:


C. E. MICHELS
MAJ, AGC
Assistant Adjutant General

Cy furn:
36th Ingr Bn
20th Ingr Bde

GPOP-DT (10 Nov 69) 4th Ind

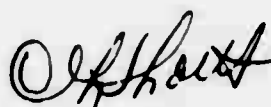
SUBJECT: Operational Report of HQ 36th Engineer Battalion (Const) for
Period Ending 31 October 1969, RCS CSFOR-65 (R2)

HQ, US Army, Pacific, APO San Francisco 96558 8 FEB 70

TO: Assistant Chief of Staff for Force Development, Department of the
Army, Washington, D. C. 20310

This headquarters concurs in subject report as indorsed.

FOR THE COMMANDER IN CHIEF:



C. L. SHORTT
CPT, AGC
Asst AG

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